

REMARKS

Claims 9-12 are pending in this application.

Regarding the Objection to the Specification

An objection to the use of the words "priority to" was raised at page 1, line 5. The portion of the specification objected to has been amended as suggested.

Regarding Rejections under 35 U.S.C. §102(b)

Claims 9 and 11 were rejected under 35 U.S.C. §102(b) as being anticipated by EP 733,931 (EP '931). The Office Action found that EP '931 taught a photovoltaic device for the conversion of light to electricity, comprising two elements: (a) a doped semiconductor structure (the first transparent oxide thin layer) for the conversion of light to electromotive force residing in the first plane and (b) a silver alloy defined by the formula Ag_xMg_y residing in a second plane where the first and second planes are substantially parallel and where $0.9 < x < 0.9999$, and $0.0001 < y < 0.10$. With regard to claim 11, the Office Action found that EP '931 taught a silver alloy thickness of 3 to 25 nm by describing a silver alloy having a thickness of 2 nm or more.

Applicant respectfully submits that the Office Action has failed to establish a prima facie case of anticipation for claims 9 and 11. First, EP '931 according to its title and a thorough reading is directed to a multilayered conductive film and a liquid crystal device based on the multilayered conductive film. EP '931 neither discusses a photovoltaic device, any combination of elements that might be expected to function in a photovoltaic device, nor the ability of any of the combination of elements presented being capable of converting light into an electromotive force. The Office Action is similarly silent on this point.

Secondly, although the Office Action identifies the metal oxide described in EP '931 as a doped semiconductor structure, EP '931 is silent as to whether the single oxide layer would

function as a doped semiconductor structure to accomplish the conversion of light into an electromotive force and nothing more than the assertion is provided in the Office Action. The metal oxide layer described can include additional metals, but such metals are added to minimize the migration of silver. EP '931 teaches nothing about the addition of the typical doping materials added to create a "doped semiconductor" as taught in applicant's specification. Further, the Office Action provides no argument that such a conversion would be inherent in the structure described. Anticipation of claims 9 and 11 as asserted in the Office Action requires EP '931 to enable one skilled in the art to practice the claimed invention. See: *Akzo N.V. v. U.S. Int'l Trade Comm'n*, 808 F.2d 1471, 1 USPQ 2d 1241, 1245 (Fed. Cir. 1986) (citing *In re Brown*, 329 F.2d 1006, 1011, 141 USPQ 245, 249 (C.C.P.A. 1964)). Applicant respectfully submits that one skilled in the art reading EP '931 is at best enabled to make a liquid crystal device and components thereof.

Finally, the levels of magnesium contained in the silver alloy described in EP '931 is 0.1 atomic percent or greater whereas the magnesium required for the alloy in claim 1 is less than 0.01 atomic percent. In view of the teaching at page 4, lines 48-50 that levels of magnesium lower than 0.1 atomic percent do not prevent silver migration, this difference is significant. For the reasons described above, applicant respectfully submits that the Office Action fails to establish a prima facie case of anticipation under 35 U.S.C. §102(b).

Regarding Rejections under 35 U.S.C. §103(a)

(a) Claim 10 was rejected under 35 U.S.C. §103(a) as being unpatentable over EP 733,931 (EP '931). The Office Action bases this rejection on the argument that EP '931 teaches a silver alloy having a magnesium content ranging from 0.1 to 3 atomic percent and the assertion that it would have been obvious to one skilled in the art to modify the level of magnesium to

within the claimed range of 0.0005 to 0.05. As a result, the requiring a silver magnesium alloy having this range of magnesium would not be a patentable modification. Applicant respectfully submits that the Office Action fails to establish a prima facie case of obviousness in view of the inability of EP '931 to support the position posited by the Office Action. As noted above, EP '931 at page 4, lines 48-50 teaches that magnesium levels should not drop below 0.1 atomic percent or unwanted migration of silver would occur. Clearly EP '931 teaches away from the range of magnesium required for claim 10 and would have led one skilled in the art reading EP '931 to consider magnesium levels greater than 0.1 atomic percent in order to avoid the migration of silver. In arriving at the magnesium levels required in claim 10 applicant went against the very teaching cited by the Office Action to reject claim 10 as being obvious. As a result, the Office Action has failed to establish a prima facie case of obviousness to support the rejection of claim 10.

(b) Claim 12 was rejected under 35 U.S.C. §103(a) as being unpatentable over EP 733,931 (EP '931) and further in view of Ukita et al. (US Patent No. 5,940,154, "Ukita"). For the reasons noted above and summarized here, the Office Action fails to properly support a rejection of obviousness based on EP '931. EP '931 is directed to a liquid crystal display and components which can be used therein. The liquid crystal display utilizes electromotive energy to generate a pattern of light within the liquid crystal display. Nothing in EP '931 teaches how to construct a device capable of converting light into an electromotive force nor does the Office Action suggest how the teaching of EP '931 might accomplish this result.

Further, the Office Action cites Ukita for teaching a roughened silver film that acts to diffuse light and argues that it would be obvious for one skilled in the art to modify the silver alloy layer taught in EP '931 "...wherein the silver-alloy layer surface is roughened because a

roughened silver film would have acted as a light diffusion and reflection plate as taught by Ukita (col. 9, lines 1-11; and Fig. 3).” However, as noted at column 2 lines 11-26, the purpose of the roughened surface is increase the “angle of visibility” for the display. In other words, when light is scattered by the roughened surface the image becomes clearer and easier to see. As noted on page 23, the first full paragraph of the current application, the purpose served by a roughened surface to applicant’s photovoltaic cell is to cause light to be trapped and directed to the appropriate cite for conversion into electrical energy. The Office Action has not provided any understanding for how Ukita’s teaching of how to improve the image quality produced by a liquid crystal device suggests to one skilled in the art that the incorporation of a roughened surface into a photovoltaic cell might enhance the desired conversion. As a result, the prima facie case of obviousness fails for lack of support of the references cited.

Claims 9-12 stand rejected. For the reasons provided above the rejections of each of these claims is respectfully traversed. In view of the above, it is submitted that claims 9-12 are in condition for allowance. Reconsideration and withdrawal of the rejections are requested. Allowance of claims 9, 10, 11, and 12 at an early date is solicited. Should the Examiner have any questions about this submission or should there be other matters which might be readily resolved, the Examiner is invited to telephone the undersigned attorney.

Respectfully submitted,

By Edward E. Sowers
Edward E. Sowers, Reg. No. 36,015
Woodard, Emhardt, Moriarty, McNett &
Henry LLP
111 Monument Circle, Suite 3700
Indianapolis, IN 46204-5137
(317) 634-3456